Amendments to the Claims:

1. (Currently Amended) A fully mixed reactor for providing activated sludge treatment of sewage as a mixed liquor which reactor includes at least one aerator operative intermittently to raise the dissolved oxygen level of the liquor and a control system which is arranged to operate the aerator to provide an operative phase including an aerobic period for a predetermined time after a first dissolved oxygen target level is reached, and an inoperative phase including an anoxic period for a predetermined time after a second, lower, dissolved oxygen target level is reached~~.~~, **and wherein in the operative phase the control system is arranged to vary the output of the aerator during the predetermined aerobic time period so as to maintain the dissolved oxygen level at a given set point which is higher than the first target level.**

2 and 3 (Cancelled)

4. (Currently Amended) A reactor as claimed in claim ~~3~~ 1 wherein said sensing and control means ~~is set for~~ **has means for varying** the given set point ~~to be from~~ between 0.5 to 5.0 mg/L.

5. (Previously Presented) A reactor as claimed in claim 1 which includes a timer means set such that the operative phase comprises an initial operative variable time period and then the predetermined aerobic time period and the

inoperative phase comprises an initial inoperative variable time period and then the predetermined anoxic time period.

6. (Currently Amended) A reactor as claimed in claim 5 wherein the timer **means has means for varying the time periods,** ~~is set~~ such that the initial operative variable time period ~~is~~ **continues** until the first target level is reached and the initial inoperative variable time period ~~is~~ **continues** until the second target level is reached.

7. (Previously Presented) A reactor as claimed in claim 5 wherein the control system includes at least one aerobic override condition timing means such that if the initial operative variable period is greater than a chosen multiple of the predetermined aerobic time period, the control system starts the inoperative phase.

8. (Previously Presented) A reactor as claimed in claim 5 wherein the control system includes at least one anoxic override condition timing means such that if the initial inoperative variable period is greater than a chosen multiple of the predetermined anoxic time period, the control system starts the operative phase.

9. (Previously Presented) A reactor as claimed in claim 7 wherein the aerobic override condition timing means is set such that the multiple is from 2 to 10.

10. (Previously Presented) A reactor as claimed in claim 7 wherein the aerobic override condition timing means is set such that the multiple is from 3 to 6.

11. (Previously Presented) A reactor as claimed in claim 1 which includes timer means set such that the predetermined aerobic time period is from 15 to 120 minutes and the predetermined anoxic time period is from 0 to 60 minutes.

12. (Previously Presented) A reactor as claimed in claim 1 which includes timer means set such that the predetermined aerobic time period is about 20 minutes and the predetermined anoxic time period is about 5 minutes.

13. (Currently Amended) A method of controlling an aerator for a fully mixed reactor providing activated sludge treatment of sewage as a mixed liquor which method includes operating the aerator in an operative phase including an aerobic period for a predetermined time after a first dissolved oxygen target level is reached, and in an inoperative phase including an anoxic period for a predetermined time after a second, lower, dissolved oxygen target level is reached~~.~~, **wherein the output of the aerator is varied during the operative phase to maintain the dissolved oxygen level at or around a given set point which is higher than the first target level.**

14. (Cancelled)

15. (Previously Presented) A method as claimed in claim 13 wherein the operative phase comprises an initial operative variable time period and then the predetermined aerobic time period and the inoperative phase comprises an initial inoperative variable time period followed by the predetermined anoxic time period.

16. (Original) A method as claimed in claim 15 wherein the initial operative variable time period is until the first target level is reached and the initial inoperative variable time period is until the second target level is reached.

17. (Original) A method as claimed in claim 15 which includes overriding the operative phase to start the inoperative phase if the initial operative variable period is greater than a chosen multiple of the predetermined aerobic time period.

18. (Original) A method as claimed in claim 15 which includes overriding the inoperative phase to start the operative phase if the initial inoperative variable period of the inoperative phase is greater than a chosen multiple of the predetermined anoxic time period.

19. (Original) A method as claimed in claim 17 wherein the multiple is from 2 to 10.

20. (Original) A method as claimed in claim 17 wherein the multiple is from 3 to 6.

21. (Original) A method as claimed in claim 18 wherein the multiple is from 2 to 10.

22. (Original) A method as claimed in claim 18 wherein the multiple is from 3 to 6.

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I hereby certify that this correspondence is being faxed to the attention of Tywana Love at Fax No. 571 273 1027 on the date indicated below.
Date: 18 May 2004

Rosemarie Mannino